

## LANGLEY RESEARCH CENTER

FACILITY LOCATION Hampton, Virginia 23665  
 FACILITY NUMBER 1146  
 FACILITY NAME 16-Foot Transonic Tunnel  
 FUNCTIONAL NAME Wind Tunnel, Transonic, 16-Ft  
 TECHNOLOGICAL AREAS Force, moment, pressure, and propulsion studies

INITIAL COST	\$ 1,422 K	YR. BUILT	1941	STATUS CODE	Active
ACCUM. COST	\$ 14,357 K	NASA B.O.D.	1961	OWNER CODE	NASA
LIFE EXPECT.	Indef.			OPER. CODE	NASA

CONTRACTOR NAME  
 (if contr. oper.)

POTENTIAL

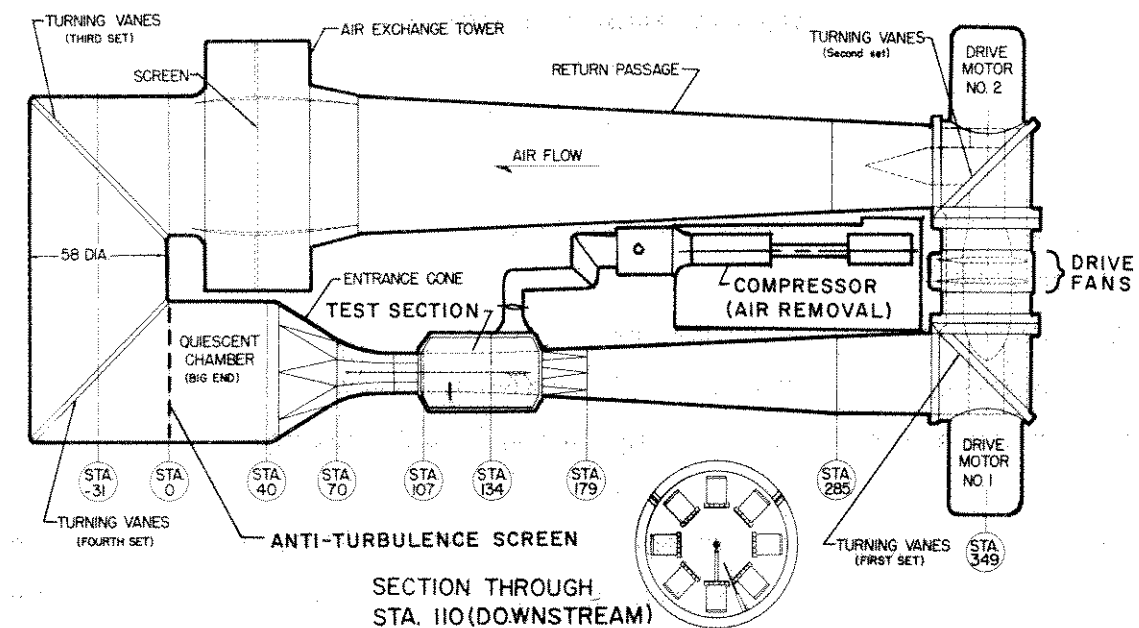
PLANS

OTHER INFO SOURCES Air-Flow and Power Characteristics of the Langley 16-Foot Transonic Tunnel with Slotted Test Section, NACA RM L52E01, July, 1952

COGNIZANT ORG. High-Speed Aircraft Division  
 COMPONENT

LOCAL CONTACT FOR FURTHER INFO Chief, Research Facilities Engineering Division, Code 56.000; (804) 827-3171

January 1974



### DESCRIPTION

This facility is a closed-circuit, single-return, continuous-flow atmospheric tunnel. The test medium is air. Speeds up to Mach 1.05 are obtained with the tunnel main drive fans; speeds above Mach 1.05 are obtained with a combination of the main drive fans and test-section plenum suction. The slotted octagonal test section nominally measures 15.5 ft across the flats. The test section length is 22 ft for speeds up to Mach 1.0 and 8 ft for speeds above Mach 1.0. The tunnel is equipped with an air exchanger with adjustable intake and exit vanes to provide some temperature control.

Model mounting consists of sting, sting-strut, and fixed-strut arrangements. Propulsion simulation studies can be made for hot jet exhausts utilizing decomposition of hydrogen peroxide or dry, cold, high-pressure air (15 lb/sec at 1000 psi). A shadowgraph system is available for flow visualization. Data are recorded with 99 channels on a Beckman 210 and reduced off-site with a CDC 6600 computer system.

### CHARACTERISTICS

Stagnation Pressure: Atmospheric  
 Stagnation Temperature, °R: 510 to 650  
 Reynolds Number, per ft:  $1.2 \times 10^6$  to  $4.2 \times 10^6$   
 Mach Number: 0.2 to 1.3  
 Dynamic Pressure, lb/ft<sup>2</sup>: 58 to 905